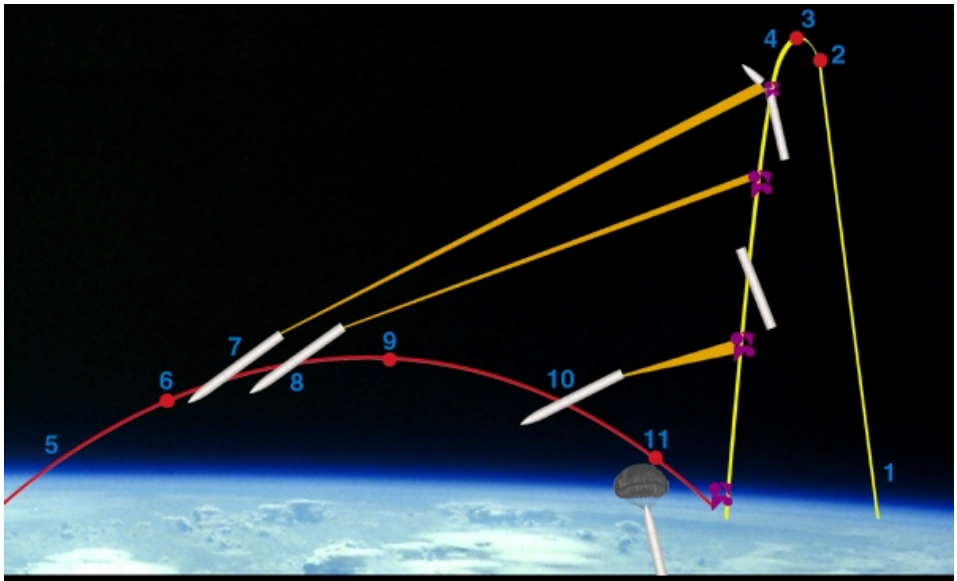
Discriminating Interceptor Technology Program (DITP)



Event	Mission Clock	Range to Targets	Target Altitude	Seeker Altitude
1 - Target Vehicle Launch	-375	-	1.24 km	-
2 - Target Object Deployed	-60	-	500 km	-
3 - Target Apogee	-25	-	520 km	-
4 - Ground Based Radar Info to the Seeker	-10	-	518 km	-
5 - Seeker Launch	0 sec	-	515 km	2 km
6 - Seeker Power Up	65	-	505 km	90 km

Event	Mission Clock	Range to Targets	Target Altitude	Seeker Altitude
7 - Passive Sensor System	108	400 km	440 km	124 km
8 - LADAR Acquisition	130	350 km	415 km	136 km
9 - Seeker Apogee	170	260 km	338 km	145 km
10 - Sensors Off / PCA	260	80 km	168 km	114 km
11 - Reentry	305	-	-	-

The Naval Research Laboratory's Naval Center for Space Technology is system integrator for the tri-service Discriminating Interceptor Technology Program (DITP). The Army (SMDC) is developing the laser radar (LADAR) and the Air Force (AFRL) is developing the data fusion processors and IR focal plane array. The Ballistic Missile Defense Organization serves as the program integrator.

The objective of DITP is to demonstrate the capability of a flight-worthy, advanced seeker concept to enhance discrimination and end-game engagement. DITP will integrate onboard LADAR, IR, processors and algorithms, and demonstrate capability through simulation, hardware-in-the-loop tests (HWIL), flight tests and analyses

Threat analyses, based on National Missile Defense Threat Description Document (23 Jun 99, C2/C3), indicate that multi-sensor data fusion using IR and LADAR phenomenology significantly increases discrimination and end game performance where, 1) high traffic volume & closely spaced objects and/or 2) Reduced IR signature and radar countermeasures exist. Additionally, this advanced seeker concept will greatly aid three dimensional target object map correlation.

A three-year test program has been developed and under implementation to prove the feasibility and address system integration issues. The test series starts with a signal injection HWIL simulation, followed by several signal projection HWIL simulations. The

LADAR will be tested at the ISTEF facility at Cape Canaveral. The test series will culminate in a flight test in FY04. Flight test data will be used to validate ground base models/simulations and gather non-existent, exo-atmospheric LADAR phenomenology in appropriate engagement scenarios.

For additional information, please contact:

Robert Towsley
Naval Research Laboratory
Code 8223
Washington, DC 20375
(202) 767-1747
rtowsley@space.nrl.navy.mil